

January 2025

Precipitation

On average, Kentucky received above normal precipitation in January. However, much of northern Kentucky and portions of south-central Kentucky were below normal for the month. Most precipitation came from two storm systems. The first, on January 5th and 6th, brought rain, ice, and snow to the state, with significant snow and ice accumulation across northern and central Kentucky. That snow and ice would remain on the ground for much of the month. The second event occurred on the 30th and 31st and brought soaking rains to the entire state, resulting in some minor river flooding.

The January 28th edition of the US Drought Monitor (USDM) depicted only a small area of Abnormally Dry (D0) in south central Kentucky. The abnormally dry conditions are not expected to remain as this region received over two inches of precipitation after the map was released.

Preliminary data estimates that the average precipitation during January was 4.20" (0.48" above normal) for the state. This would make it the 59th wettest January, out of 131, on record. According to the Kentucky Mesonet, the highest precipitation amount was in Harlan County, 7.28", and the lowest were in Boone and Campbell counties, 2.14".

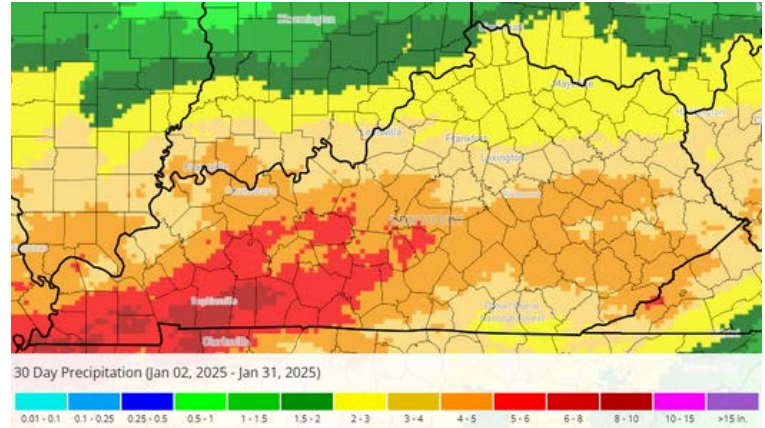


Figure 1. Monthly precipitation map.

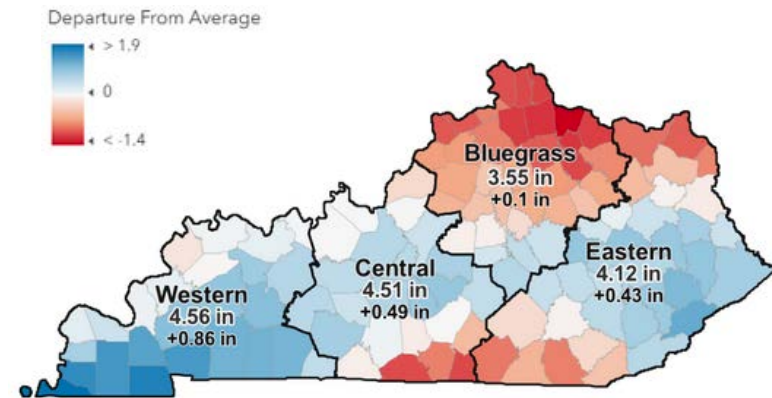


Figure 2. Departure from normal precipitation by county and climate division.

Table 1. Regional precipitation patterns

Climate Region	Departure From Normal (inches)					Palmer Drought Severity Index*
	This Month	Past 2 Mos.	Past 3 Mos	Past 6 Mos	Past 12 Mos	
Western	0.85	2.68	4.88	4.40	7.92	2.17
Central	0.51	1.58	2.21	0.50	4.12	1.17
Bluegrass	0.10	0.20	1.72	1.10	-0.08	-1.00
Eastern	0.43	1.22	1.19	0.87	1.37	-0.95

*4.0 and above (Extremely Moist) -2.0 to -2.9 (Moderate Drought)
 3.0 to 3.9 (Very Moist Spell) -3.0 to -3.9 (Severe Drought)
 2.0 to 2.9 (Unusual Moist Spell) -4.0 or less (Extreme Drought)
 -1.9 to 1.9 (Near Normal)

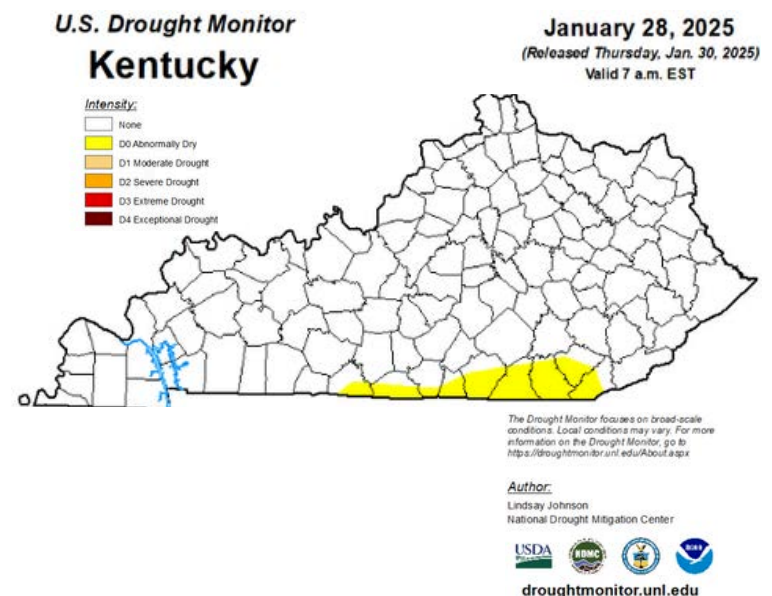


Figure 3. Current US Drought Monitor Map.

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Streamflow

January streamflow was generally at or above normal. The dry weather, combined with the sub-freezing temperatures, did lead to some below normal flows in south-central Kentucky. The precipitation event at the end of the month, combined with ground that was still fully to partially frozen, improved flows and even resulted in some minor flooding across the area. Minor flooding was also noted in the Green and Salt River basins.

Flows in the Ohio River at the end the month were below normal but are expected to rise as water from the last precipitation event makes its way into the river. There are currently no concerns regarding streamflow in the state.

Table 2. Mean Stream Discharge select stream gages.

River and Location	Drainage Area (mi ²)	7 Day		28 Day	
		Average Flow (cfs)	% of Normal*	Average Flow (cfs)	% of Normal*
Levisa Fork at Pikeville	2144	4631	339	2958	213
Little Sandy River near Grayson	400	1438	309	718	150
North Fork Licking River nr Mt Olivet	226	897	295	484	151
Kentucky River at Lock 14	2657	10583	279	6694	170
Kentucky River at Lock 2	6180	17745	217	13584	160
Cumberland River at Cumberland Falls	1977	5809	187	4368	137
Beaver Creek near Monticello	43	119	230	57	106
Beech Fork at Bardstown	669	3903	419	2174	222
Barren River at Bowling Green	1849	3680	148	3398	134
Green River at Calhoun	7566	19865	188	20266	186
Tradewater River at Olney	255	1195	356	793	229
Clarks River at Almo	134	1285	733	576	321
Bayou De Chien near Clinton	69	547	654	272	269
Ohio River at Greenup Dam	62000	86800	103	64045	74
Ohio River at Canneltion Dam	97000	91957	72	104179	80
Mississippi River @ Thebes, IL	713200	101863	41	109203	45

* Base Period 1980-2023

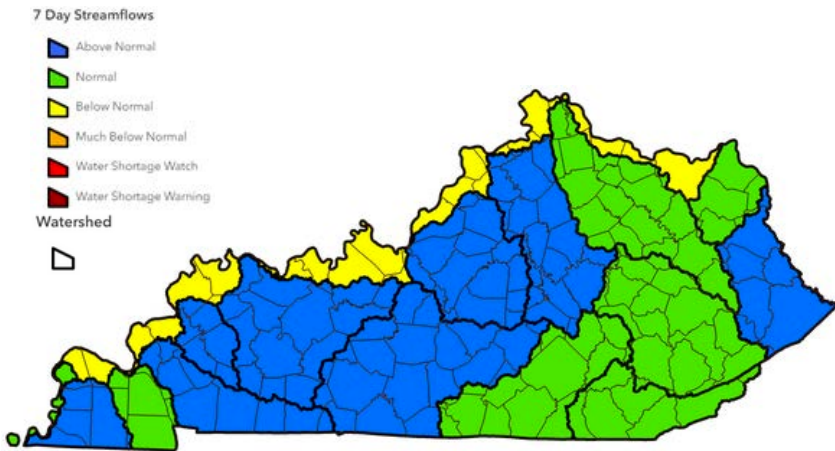


Figure 5. Average streamflow by watershed over the past 7-days (January 25-31).

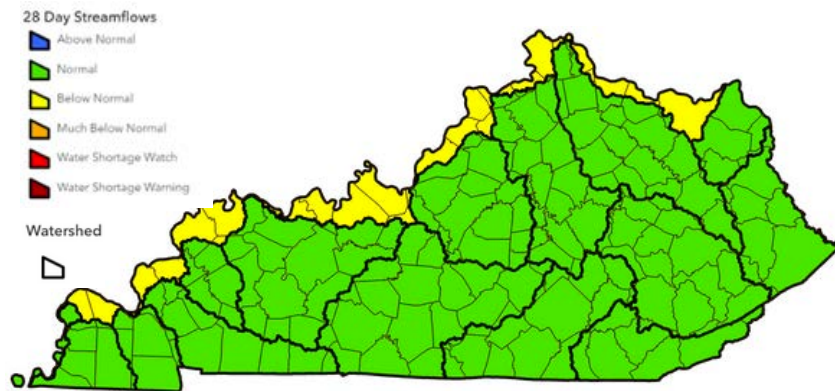
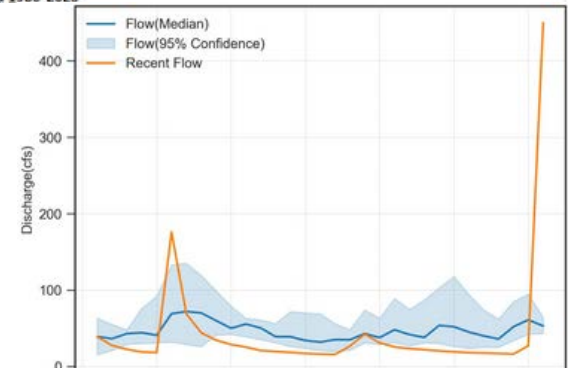
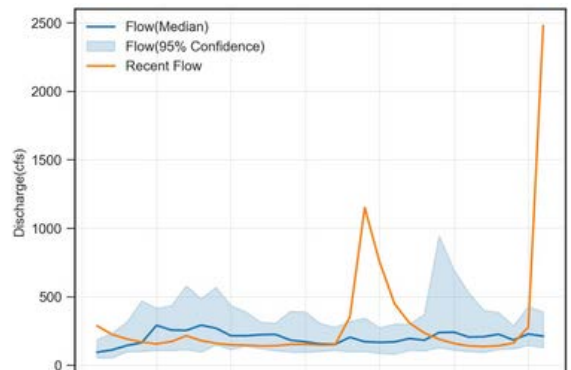


Figure 6. Average streamflow by watershed over the past 28-days (January 4-31).

Beaver Creek near Monticello, January 2025



North Elkhorn Creek at Georgetown, January 2025



Pond River near Apex, January 2025

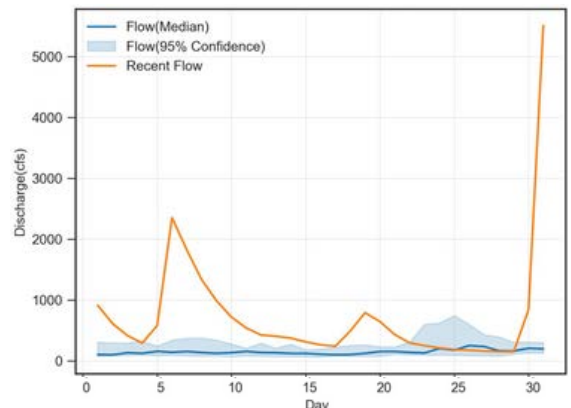


Figure 7. Streamflows compared to median flows for the month.

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Reservoir Storage

Reservoir storage for water supply lakes remain normal for the entire state.

We are currently in the time of year where reservoirs refill. The high runoff from the heavy precipitation, snow melt, and frozen soils should help with any reservoirs that may not have already been completely refilled. There are no concerns with reservoir levels at this time.

Groundwater

General Statement: Kentucky is a geologically, and hydrogeologically, diverse state. Groundwater data is limited in availability and where available may only be applicable to the immediate area given regional geologic variability. Local conditions may not be accurately reflected by the reference locations selected and local rainfall and surface water conditions may provide additional or more representative information. Current data is compared to a 30-year reference period (1980 - 2010) or the longest available period of continuous data.

Inner Bluegrass: Royal Springs has maintained or exceeded median flow across January. The highest flow occurred as storm response at the end of the month. Storm response is seen following snow and ice in the middle of the month and then rainfall on the 30th and 31st. Given these observations, groundwater across the Inner and Outer Bluegrass is expected to be at or above median flow across January and entering February.

Jackson Purchase: Viola Well remains above the median in the Viola well, this is consistent with an observed trend of increasing groundwater levels across the reference period. Water levels are expected to remain above the median and increase to a seasonal maximum across the winter to early spring recharge period.

Middlesboro: The alluvial aquifer at Middlesboro began at median values but fell across the month to below the confidence interval of the reference period in response to below average rainfall for the month. Water levels rebounded roughly 1 foot in response to combined late January snow melt and rainfall.

Additional data can be found at:
<https://www.uky.edu/KGS/water/water-groundwater-monitoring.php>

Figure 8. Locations of reference reservoirs across the state. Status of reservoir levels indicated by color.

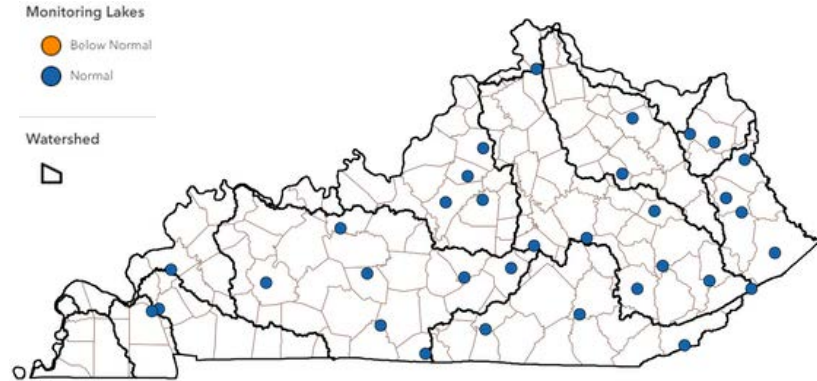
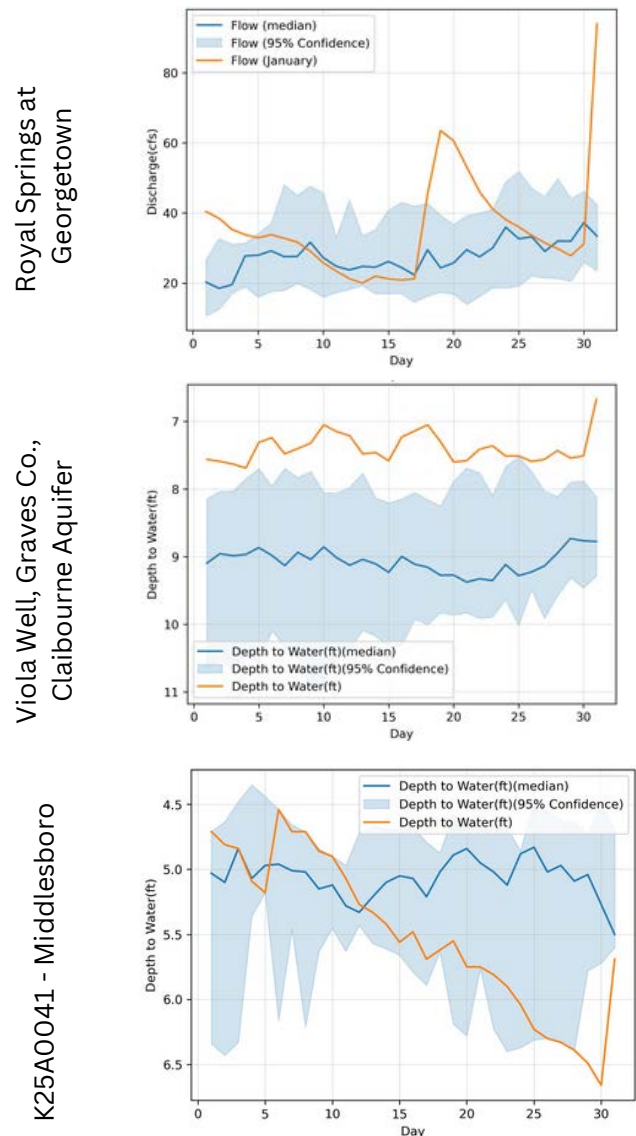


Figure 9. Groundwater observations compared to normal for the month.



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Forecast

The Climate Prediction Center (CPC) is currently predicting increased chances for above normal precipitation in Kentucky during February as well as February through April. The darker green indicates a higher amount of confidence in above normal precipitation. Short term forecasts are predicting above normal precipitation and below normal temperatures for the first half of February, indicating the potential for flooding and the return of winter precipitation in Kentucky.

The current U.S. Monthly Drought Outlook shows no drought is expected to develop in Kentucky during the month of February.

Note: these forecasts do not provide the quantity above or below normal, just the probability it will occur.

U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for February 2025
Released January 31, 2025

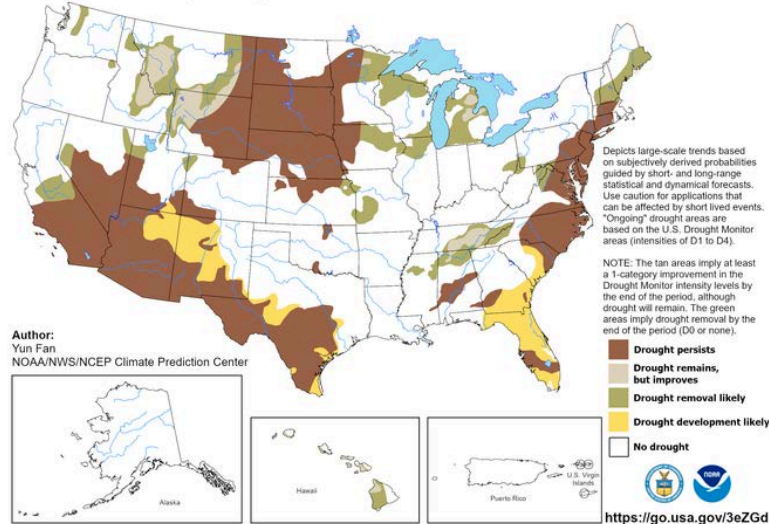


Figure 10. Monthly drought outlook.

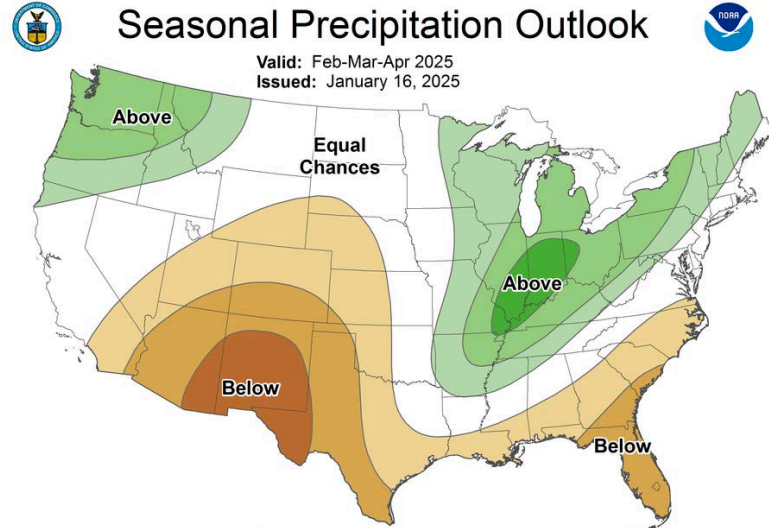
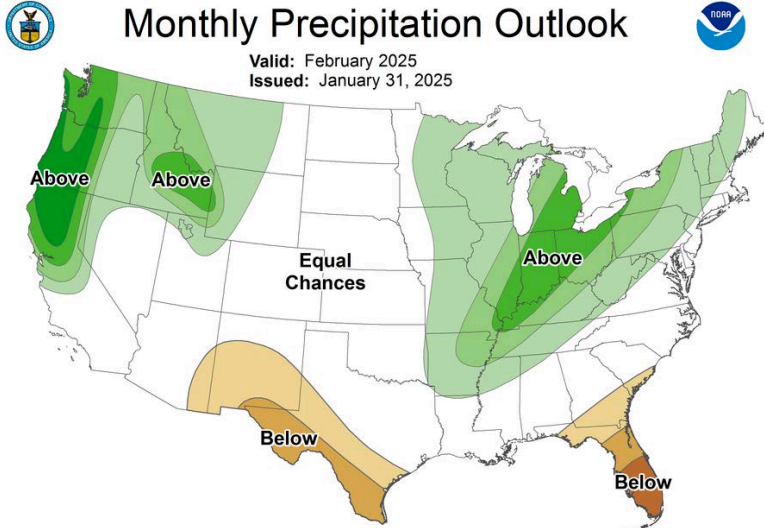


Figure 11. Monthly and seasonal precipitation outlooks.

Contact Us

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Report Drought Conditions



Acknowledgments

Precipitation Data:

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Centers for Environmental Information; Kentucky Mesonet; Midwest Regional Climate Center; Southern Regional Climate Center.

Streamflow Data:

U.S. Geological Survey, Water Resources Division.

Reservoir Data:

U.S. Army Corps of Engineers, Huntington, Louisville, and Nashville Districts; Kentucky Division of Water, Water Supply Section.

Forecast Data:

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climate Prediction Center.